

GWT - LOGGING FRAMEWORK

http://www.tutorialspoint.com/gwt/gwt_logging_framework.htm

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The logging framework emulates java.util.logging, so it uses the same syntax and has the same behavior as server side logging code

GWT logging is configured using .gwt.xml files.

We can configure logging to be enabled/disabled; we can enable/disable particular handlers, and change the default logging level.

Types of Logger

- Loggers are organized in a tree structure, with the Root Logger at the root of the tree.
- Name of the logger determine the Parent/Child relationships using . to separate sections of the name.
- As an example if we have two loggers Hospital.room1 and Hospital.room2, then they are siblings, with their parent being the logger named Hospital. The Hospital logger (and any logger with a name which does not contain a dot ".") has the Root Logger as a parent.

```
private static Logger room1Logger = Logger.getLogger("Hospital.room1");
private static Logger room2Logger = Logger.getLogger("Hospital.room2");
private static Logger hospitalLogger = Logger.getLogger("Hospital");
private static Logger rootLogger = Logger.getLogger("");
```

Log Handlers

GWT provides default handlers which will show the log entries made using loggers.

Handler	Logs to	Description
SystemLogHandler	stdout	These messages can only be seen in Development Mode in the DevMode window.
DevelopmentModeLogHandler	DevMode Window	Logs by calling method GWT.log. These messages can only be seen in Development Mode in the DevMode window.
ConsoleLogHandler	javascript console	Logs to the javascript console, which is used by Firebug Lite (for IE), Safari and Chrome.
FirebugLogHandler	Firebug	Logs to the firebug console.
PopupLogHandler	popup	Logs to the popup which resides in the upper left hand corner of application when this handler is enabled.
SimpleRemoteLogHandler	server	This handler sends log messages to the server, where they will be logged using the server side logging mechanism.

Configure Logging in GWT Application

HelloWorld.gwt.xml file is to be configured to enable GWT logging as follows:

```
# add logging module
<inherits name="com.google.gwt.logging.Logging"/>
# To change the default logLevel
<set-property name="gwt.logging.logLevel" value="SEVERE"/>
# To enable logging
<set-property name="gwt.logging.enabled" value="TRUE"/>
# To disable a popup Handler
<set-property name="gwt.logging.popupHandler" value="DISABLED" />
```

Use logger to log user actions

```
/* Create Root Logger */
private static Logger rootLogger = Logger.getLogger("");
...
rootLogger.log(Level.SEVERE, "pageIndex selected: " + event.getValue());
...
```

Logging Framework Example

This example will take you through simple steps to demonstrate Logging Capability of a GWT application. Follow the following steps to update the GWT application we created in *GWT - Create Application* chapter:

Step	Description
1	Create a project with a name <i>HelloWorld</i> under a package <i>com.tutorialspoint</i> as explained in the <i>GWT - Create Application</i> chapter.
2	Modify <i>HelloWorld.gwt.xml</i> , <i>HelloWorld.css</i> , <i>HelloWorld.html</i> and <i>HelloWorld.java</i> as explained below. Keep rest of the files unchanged.
3	Compile and run the application to verify the result of the implemented logic.

Following is the content of the modified module descriptor **src/com.tutorialspoint/HelloWorld.gwt.xml**.

```
<?xml version="1.0" encoding="UTF-8"?>
<module rename-to='helloworld'>
  <!-- Inherit the core Web Toolkit stuff. -->
  <inherits name='com.google.gwt.user.User' />

  <!-- Inherit the default GWT style sheet. -->
  <inherits name='com.google.gwt.user.theme.clean.Clean' />
  <inherits name="com.google.gwt.logging.Logging" />
  <!-- Specify the app entry point class. -->
  <entry-point class='com.tutorialspoint.client.HelloWorld' />
  <!-- Specify the paths for translatable code -->
  <source path='client' />
  <source path='shared' />
  <set-property name="gwt.logging.logLevel" value="SEVERE" />
  <set-property name="gwt.logging.enabled" value="TRUE" />
  <set-property name="gwt.logging.popupHandler" value="DISABLED" />
</module>
```

Following is the content of the modified Style Sheet file **war/HelloWorld.css**.

```
body{
  text-align: center;
  font-family: verdana, sans-serif;
}
h1{
  font-size: 2em;
  font-weight: bold;
```

```
color: #777777;
margin: 40px 0px 70px;
text-align: center;
}
```

Following is the content of the modified HTML host file **war/HelloWorld.html**

```
<html>
<head>
<title>Hello World</title>
  <link rel="stylesheet" href="HelloWorld.css"/>
  <script language="javascript" src="helloworld/helloworld.nocache.js">
  </script>
</head>
<body>

<iframe src="javascript:''"
  style="width:0;height:0;border:0"></iframe>
<h1> Logging Demonstration</h1>
<div ></div>

</body>
</html>
```

Let us have following content of Java file **src/com.tutorialspoint/HelloWorld.java** using which we will demonstrate Bookmarking in GWT Code.

```
package com.tutorialspoint.client;

import java.util.logging.Level;
import java.util.logging.Logger;

import com.google.gwt.core.client.EntryPoint;
import com.google.gwt.event.logical.shared.ValueChangeEvent;
import com.google.gwt.event.logical.shared.ValueChangeHandler;
import com.google.gwt.logging.client.HasWidgetsLogHandler;
import com.google.gwt.user.client.History;
import com.google.gwt.user.client.ui.HTML;
import com.google.gwt.user.client.ui.HorizontalPanel;
import com.google.gwt.user.client.ui.Hyperlink;
import com.google.gwt.user.client.ui.RootPanel;
import com.google.gwt.user.client.ui.TabPanel;
import com.google.gwt.user.client.ui.VerticalPanel;

public class HelloWorld implements EntryPoint {

    private TabPanel tabPanel;
    /* Create Root Logger */
    private static Logger rootLogger = Logger.getLogger("");
    private VerticalPanel customLogArea;

    private void selectTab(String historyToken) {
        /* parse the history token */
        try {
            if (historyToken.substring(0, 9).equals("pageIndex")) {
                String tabIndexToken = historyToken.substring(9, 10);
                int tabIndex = Integer.parseInt(tabIndexToken);
                /* Select the specified tab panel */
                tabPanel.selectTab(tabIndex);
            } else {
                tabPanel.selectTab(0);
            }
        } catch (IndexOutOfBoundsException e) {
            tabPanel.selectTab(0);
        }
    }

    /**
     * This is the entry point method.
     */
}
```

```

*/
public void onModuleLoad() {
    /* create a tab panel to carry multiple pages */
    tabPanel = new TabPanel();

    /* create pages */
    HTML firstPage = new HTML("<h1>We are on first Page.</h1>");
    HTML secondPage = new HTML("<h1>We are on second Page.</h1>");
    HTML thirdPage = new HTML("<h1>We are on third Page.</h1>");

    String firstPageTitle = "First Page";
    String secondPageTitle = "Second Page";
    String thirdPageTitle = "Third Page";

    Hyperlink firstPageLink = new Hyperlink("1", "pageIndex0");
    Hyperlink secondPageLink = new Hyperlink("2", "pageIndex1");
    Hyperlink thirdPageLink = new Hyperlink("3", "pageIndex2");

    HorizontalPanel linksHPanel = new HorizontalPanel();
    linksHPanel.setSpacing(10);
    linksHPanel.add(firstPageLink);
    linksHPanel.add(secondPageLink);
    linksHPanel.add(thirdPageLink);

    /* If the application starts with no history token,
       redirect to a pageIndex0 */
    String initToken = History.getToken();

    if (initToken.length() == 0) {
        History newItem("pageIndex0");
        initToken = "pageIndex0";
    }

    tabPanel.setWidth("400");
    /* add pages to tabPanel*/
    tabPanel.add(firstPage, firstPageTitle);
    tabPanel.add(secondPage, secondPageTitle);
    tabPanel.add(thirdPage, thirdPageTitle);

    /* add value change handler to History
     * this method will be called, when browser's Back button
     * or Forward button are clicked.
     * and URL of application changes.
     */
    History.addValueChangeHandler(new ValueChangeHandler<String>() {
        @Override
        public void onValueChange(ValueChangeEvent<String> event) {
            selectTab(event.getValue());
            rootLogger.log(Level.SEVERE, "pageIndex selected: "
                + event.getValue());
        }
    });

    selectTab(initToken);

    VerticalPanel vPanel = new VerticalPanel();

    vPanel.setSpacing(10);
    vPanel.add(tabPanel);
    vPanel.add(linksHPanel);

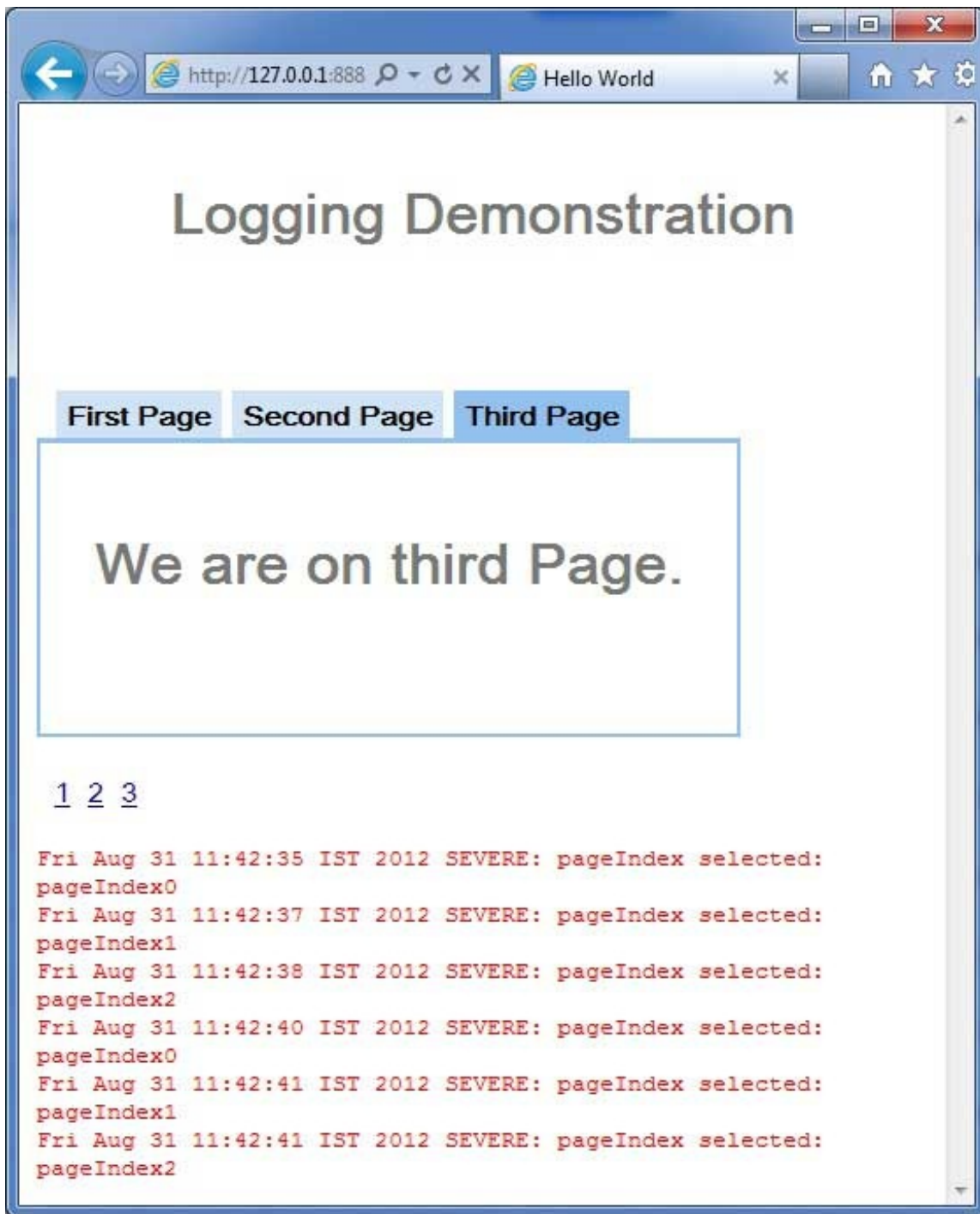
    customLogArea = new VerticalPanel();
    vPanel.add(customLogArea);

    /* an example of using own custom logging area. */
    rootLogger.addHandler(new HasWidgetsLogHandler(customLogArea));

    /* add controls to RootPanel */
    RootPanel.get().add(vPanel);
}
}

```

Once you are ready with all the changes done, let us compile and run the application in development mode as we did in [GWT - Create Application](#) chapter. If everything is fine with your application, this will produce following result:



Now click on 1, 2 or 3. You can notice, when you click on 1,2 or 3 ,you can see the log is getting printed displaying the pageIndex. Check the Console output in Eclipse. You can see the log is getting printed in Eclipse console as well.

```
Fri Aug 31 11:42:35 IST 2012
SEVERE: pageIndex selected: pageIndex0
Fri Aug 31 11:42:37 IST 2012
SEVERE: pageIndex selected: pageIndex1
Fri Aug 31 11:42:38 IST 2012
SEVERE: pageIndex selected: pageIndex2
Fri Aug 31 11:42:40 IST 2012
SEVERE: pageIndex selected: pageIndex0
Fri Aug 31 11:42:41 IST 2012
SEVERE: pageIndex selected: pageIndex1
Fri Aug 31 11:42:41 IST 2012
SEVERE: pageIndex selected: pageIndex2
```

Now update module descriptor **src/com.tutorialspoint/HelloWorld.gwt.xml** to enable popupHandler.

```
<?xml version="1.0" encoding="UTF-8"?>
<module rename-to='helloworld'>
  <!-- Inherit the core Web Toolkit stuff. -->
  <inherits name='com.google.gwt.user.User' />

  <!-- Inherit the default GWT style sheet. -->
  <inherits name='com.google.gwt.user.theme.clean.Clean' />
  <inherits name="com.google.gwt.logging.Logging" />
  <!-- Specify the app entry point class. -->
  <entry-point class='com.tutorialspoint.client.HelloWorld' />
  <!-- Specify the paths for translatable code -->
  <source path='client' />
  <source path='shared' />
  <set-property name="gwt.logging.logLevel" value="SEVERE" />
  <set-property name="gwt.logging.enabled" value="TRUE" />
  <set-property name="gwt.logging.popupHandler" value="ENABLED" />
</module>
```

Once you are ready with all the changes done, reload the application by refreshing the browser window (press F5/reload button of the browser). Notice a popup window is present now in upper left corner of the application.

Now click on 1, 2 or 3. You can notice, when you click on 1,2 or 3 ,you can see the log is getting printed displaying the pageIndex in the popup window.

